# HEPATIC ENCEPHALOPATHY

# Overview


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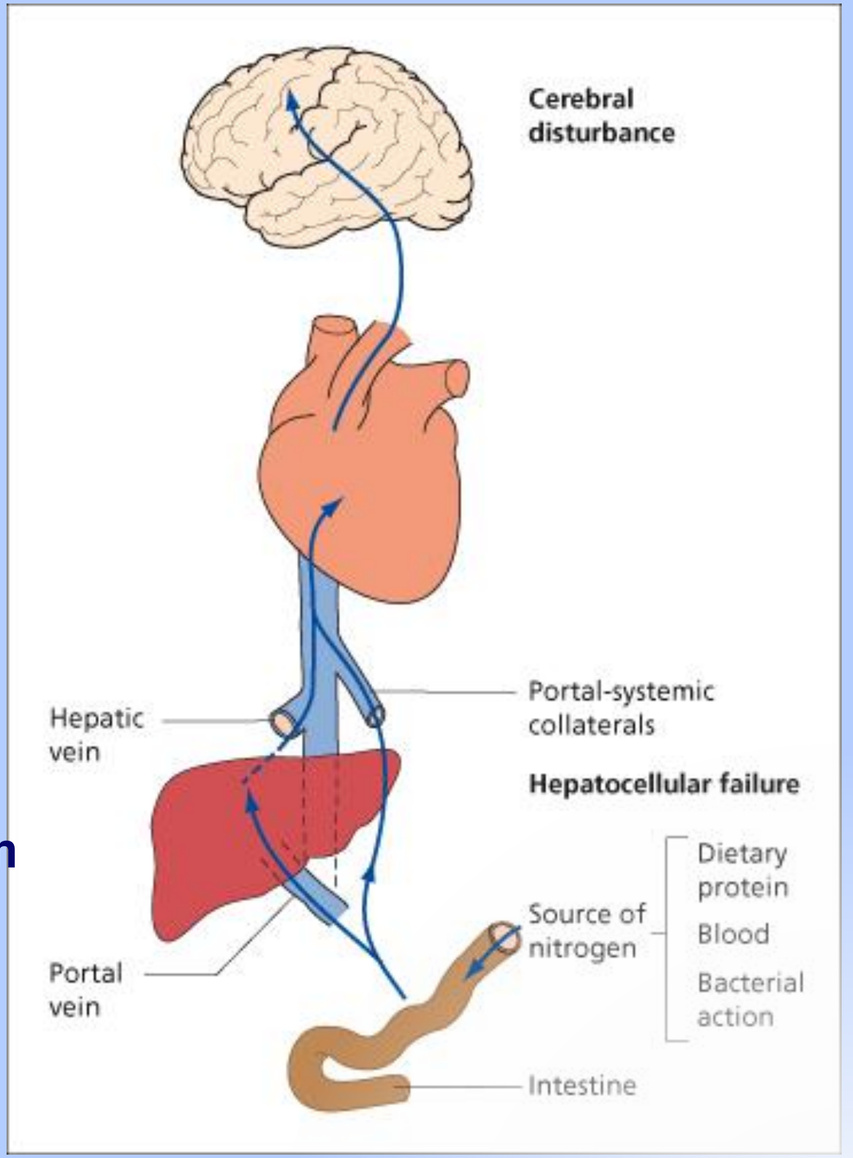
# INTRODUCTION

## Failure of liver function can be:

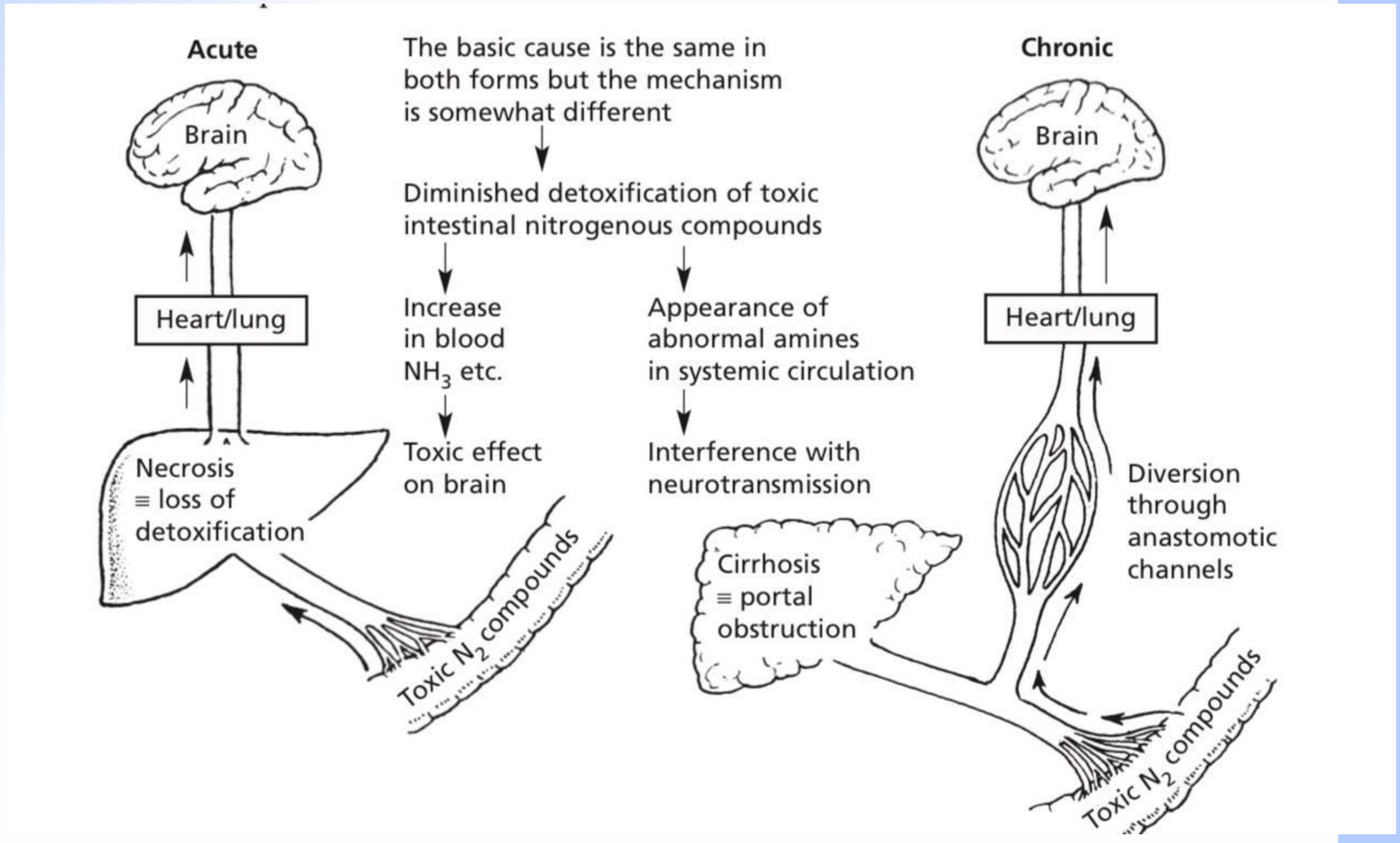
- Acute: (<8 weeks from onset of liver disease), e.g. massive necrosis due to poisoning, e.g. paracetamol.
- Chronic and sometimes recurring: e.g. in cirrhosis or chronic hepatitis.

## HEPATIC ENCEPHALOPATHY

- the impaired mental state and neurological function due to liver failure.
- It takes the form of tremors, behavioral changes, convulsions, delirium, drowsiness and coma.
- In the acute form, severe symptoms such as convulsions, delirium and coma develop rapidly
- In chronic conditions milder changes are seen and coma is a late feature.



# pathophysiology



# classification

- By underlying disease:

  - Type A – Acute liver failure
  - Type B – Portosystemic shunting without intrinsic liver disease
  - Type C – Cirrhosis (most common)

- By severity: West Haven grading system (0–IV)

- By clinical presentation: Covert vs Overt HE

- According to the existence of precipitating factors:
  - Non precipitated
  - Precipitated (and the precipitating factors should be Specified).

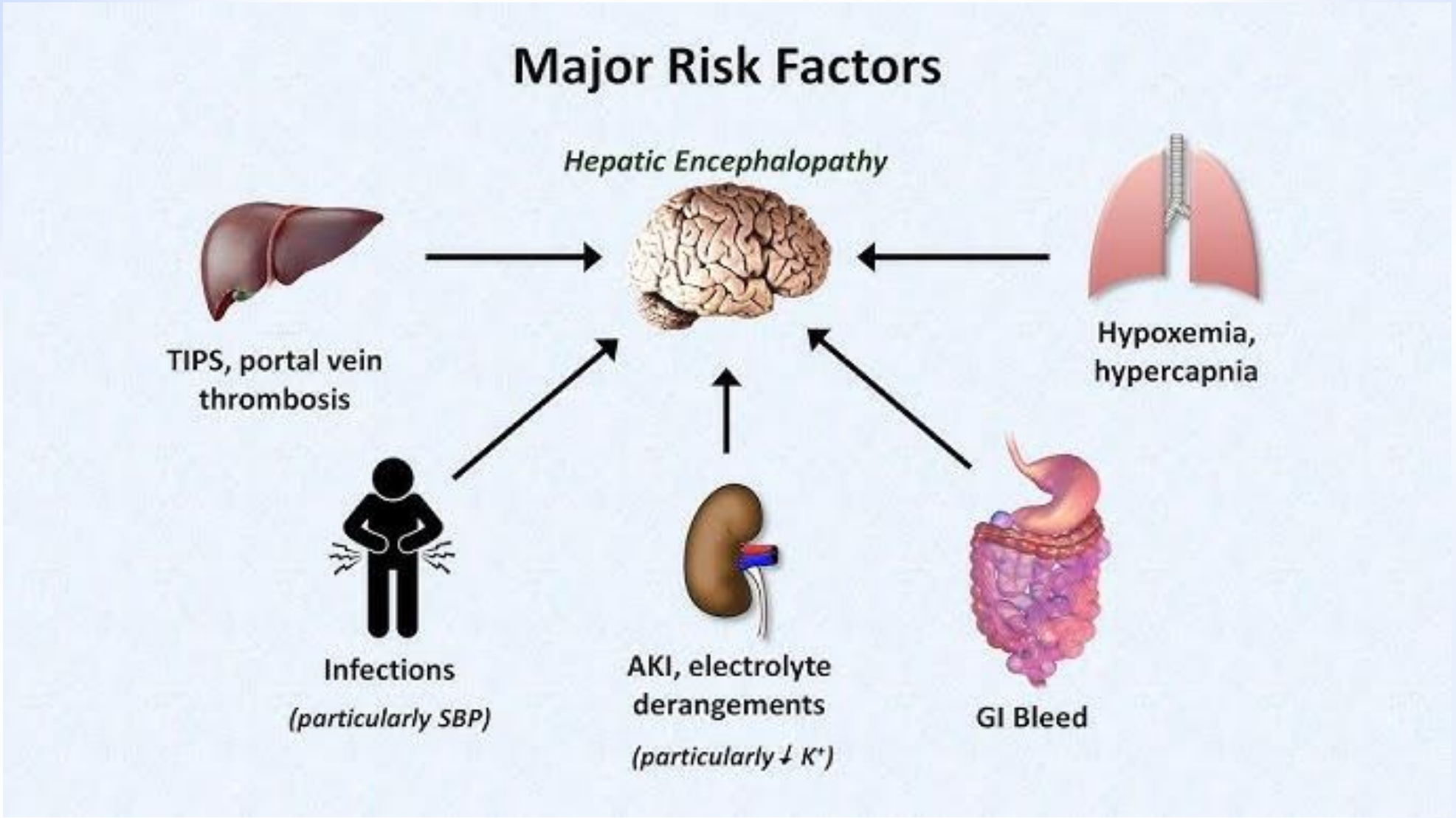
# SYMPTOMS

**Grading system for hepatic encephalopathy**

| Grade | Mental status | Asterixis | EEG |
|---|---|---|---|
| I | Euphoria/depression | Yes/no | Usually normal |
| | Mild confusion | | |
| | Slurred speech | | |
| | Disordered sleep | | |
| II | Lethargy | Yes | Abnormal |
| | Moderate confusion | | |
| III | Marked confusion | Yes | Abnormal |
| | Incoherent | | |
| | Sleeping but arousable | | |
| IV | Coma | No | Abnormal |

EEG: electroencephalogram.

# Precipitating Factors



# DIAGNOSIS

The approach to the diagnosis of hepatic encephalopathy includes

- A history and physical examination to detect the cognitive and neuromuscular Impairments
- Psychometric testing if minimal hepatic encephalopathy is suspected
- Exclusion of other causes of mental status changes
  - Serum laboratory testing to rule out metabolic abnormalities
  - Ct scan or MRI to rule out focal brain lesion

Serum ammonia levels do not correlate reliably with severity and should not be used alone to diagnose or monitor HE

- Evaluation for precipitating causes

# DIFFERENCIAL DIAGNOSIS

## Overt HE or acute confusional state:

- Diabetic (hypoglycemia, ketoacidosis, hyperosmolar, lactate acidosis)
- Alcohol (intoxication, withdrawal, Wernicke)
- Drugs (benzodiazepines, neuroleptics, opioids)
- Neuro-infections
- Electrolyte disorders (hyponatremia and hypercalcemia)
- Nonconvulsive epilepsy
- Psychiatric disorders
- Intracranial bleeding and stroke
- Severe medical stress (organ failure and inflammation)

# MANAGEMENT

## General Principles

**The initial management of acute hepatic encephalopathy in patients with Chronic liver disease involves:**

- **Identification and correction of precipitating causes**
- **Measures to lower the blood ammonia concentration**
- **supportive care**
  - **Airway protection is mandatory in grades III–IV HE**

## Pharmacologic Therapy

- **Lactulose: First-line therapy (30 to 45 ML) orally 2-4 times per day until 2–3 soft stools/day, then titrated for maintenance.**
- **Rifaximin: 550 mg orally twice daily. Added to lactulose for secondary prophylaxis or recurrent HE.**
- **Other alternatives for patients who are refractory to conventional therapy include:**

**L-ornithine , L-aspartate and branched-chain amino acids.**

# MANAGEMENT

- No pharmacologic treatment for patients with minimal HE unless it has an effect on the quality of life (based on results of psychometric testing)
- they are advised to implement oral nutritional therapy

## Nutrition

- Protein restriction is not recommended.
- Patients should receive 1.2–1.5 g/kg/day of protein, Preferably from vegetable and dairy sources.

## Transplant Considerations

Recurrent or refractory overt HE is a strong indication for liver transplant evaluation.

# Prognosis

- Development of overt HE signifies advanced liver disease and is associated with increased mortality.
- Covert HE predicts progression to overt HE and reduced survival.

# SUMMARY AND CONCLUSION

- HE is the impaired mental state and neurological function due to liver failure.
- The diagnosis of HE is a diagnosis of exclusion as there’s no specific hepatic encephalopathy test
- Nutritional therapy is essential for minimal HE patients ,to prevent development of overt HE
- Prognosis is bad, so Recurrent or refractory overt HE is a strong indication for liver transplant evaluation.

# REFRENCES

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# THANK YOU